

Directions: All questions must be completed on loose leaf. A calculator is allowed. Please reduce any fractions to lowest terms. Place a box around your final answer. **ALL WORK MUST BE SHOWN FOR FULL VALUE.**

Part A:**/12**

1) Evaluate each of the following: (2 marks each)

a) $\sqrt{\sqrt{1+3}+10^2-10 \times 4}$

b) $-3.4 + 4.5 \times (-2.8) - 7.1 \div (-2)$

c) $\left(-\frac{2}{5}\right)\left(-\frac{2}{5}\right) \div \left(\frac{2}{25}\right) - \left(-\frac{4}{5}\right)$

2) Simplify (1 marks each)

a) $(4^2 \times 4^5) \times 4^6$

b) $\frac{[(-6)^2 \times (-6)^4]^2}{(-6)^6}$

c) $\frac{-(4^2 \times 3^5)^3}{(3^4 \times 4^6)} + 3^6 \times 3^0$

d) $(3x+3) + (4x-4)$

e) $(-3r-4) + (-1-2r)$

f) $(5h^2-4) + (-2h^2-3h+1)$

Part B: Please answer all questions. 3 marks each**/12**1) Are the polynomials $5t^2 - 6t + 1$ and $-6t + 1 + 5t^2$ equivalent? Explain your reasoning.

2) Each polynomial represents the perimeter of a rectangle. Sketch algebra tiles to make a rectangle they could represent.

a) $8d+2$

b) $6f$

c) $4+4k$

- 3) One third of a number is increased by one half of the same number. Create an expression for this. Make sure to simplify your expression.
- 4) Mr. McNeelands, Mrs. Cameron, and Mr. van Raalte all collect coffee mugs. Mrs. Cameron has 7 fewer than Mr. McNeelands, and Mr. van Raalte has 4 more than Mr. McNeelands. Write a polynomial to express how many coffee mugs they all have in total.

Part C: Complete question 1 and choose any 2 of the remaining 3 questions.
4 marks each **/12**

- 1) Use algebra tiles to model the polynomial that fits each description. Sketch the tiles you used.
 - a) a second-degree trinomial in the variable x , the coefficients of the variables when the polynomial is written in descending order are -2 and -4, and with a constant term 5
 - b) a first-degree binomial in the variable y , with constant term -3, and the coefficient of the other term is 4.
- 2) A homeowner is installing a swimming pool in her backyard. She wants its length to be 3 metres longer than its width. Then she wants to surround it by a concrete walkway that is 2 metre wide. Write an expression for the outer perimeter of the walkway.
- 3) A rectangle has a perimeter of $18w + 6$. The sum of any two adjacent sides is $9w + 3$, and the sum of the two shorter sides is $4w + 4$. Determine the expression of the length of each side.
- 4) Kelcie and Frodo both have jobs, and they work the same amount of hours per week. Their pay rates and expenses are below:

	Pay Rate	Weekly Expenses
Kelcie	\$12.50 per hour	\$32 uniform rental
Frodo	\$11 per hour	\$36 for gas

Write a polynomial to represent their combined take-home pay for Kelcie and Frodo.